

Claim Amendments

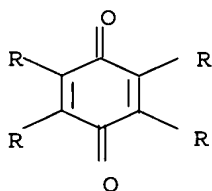
This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

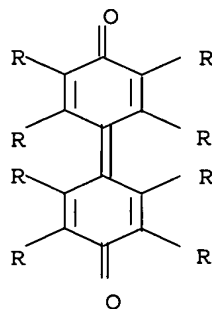
Claims 1-13. (Canceled)

Claim 14. (New) A process for emulsion polymerization of one or more olefins, comprising:

i) preparing a catalyst by reacting a) a ligand of the formula Ia or Ib or a mixture of at least two of the ligands Ia or Ib with b-1) a phosphine compound PR'_3 , wherein R' is hydrogen, C_1 - C_{12} alkyl, C_4 - C_{12} cycloalkyl, C_7 - C_{15} aralkyl or C_6 - C_{15} aryl group, or b-2) a diphosphine compound $R'_2P-G-PR'_2$, wherein R' is as defined for the phosphine compound (b-1) and G is C_1 - C_{12} alkyl, C_4 - C_{12} cycloalkyl, C_7 - C_{15} aralkyl or C_6 - C_{15} aryl, and c) a metal compound of the formula $M(L^2)_2$ or $M(L^2)_2(L^1)_z$, wherein the formulas of the ligands Ia and Ib (a) are as follows:



Ia

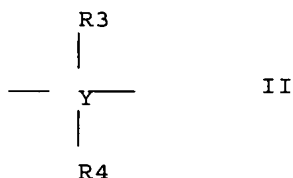


Ib

wherein each R substituent represents one or more of the following radicals:
hydrogen, halogen, nitrile; or C_1 - C_{12} alkyl, C_1 - C_{12} alkoxy, C_7 - C_{13} aralkyl, C_6 - C_{14} aryl groups,

each optionally substituted by C₁-C₁₂ alkyl groups, halogens, C₁-C₁₂ alkoxy, C₃-C₁₂ cycloalkyl, C₁-C₁₂ thioether groups, or carboxyl groups or sulfo groups, each being in its acid or salt form, or amino and/or C₁-C₁₂ alkyl substituted amino groups;

amino groups NR¹R², where R¹ and R² together or separately are hydrogen, C₁-C₁₂ alkyl, C₇-C₁₃ aralkyl or C₆-C₁₄ aryl groups and may additionally form a saturated or unsaturated 5- to 10-membered ring, unsubstituted or substituted by C₁-C₁₂ alkyl groups, halogens, C₁-C₁₂ alkoxy, C₃-C₁₂ cycloalkyl, C₁-C₁₂ thioether groups, or carboxyl groups or sulfo groups, each being in its acid or salt form, or amino and/or C₁-C₁₂ alkyl substituted amino groups; and wherein identical or different compounds of the formulae Ia and Ib optionally are bridged by one or more C₁-C₁₂ alkylene, C₂-C₁₂ alkylated azo or formula II bridging moieties, said formula II having the structure:



wherein Y is silicon or germanium and R³ and R⁴ are hydrogen and/or C₁-C₁₂ alkyl; and wherein the definitions of the metals and L groups in the metal compounds are as follow:

M is a transition metal selected from the group consisting of Groups 7 to 10 of the Periodic Chart of the Elements;

L¹ is phosphanes (R⁵)_xPH_{3-x} or amines (R⁵)_xNH_{3-x} with identical or different radicals R⁵, ethers (R⁵)₂O, H₂O, alcohols (R⁵)OH, pyridine, pyridine derivatives of the formula C₅H_{5-x}(R⁵)_xN, CO, C₁-C₁₂ alkyl nitriles, C₆-C₁₄ aryl nitriles or ethylenically unsaturated double bond systems, x being an integer from 0 to 3;

R⁵ is hydrogen, C₁-C₂₀ alkyl groups, which may in turn be substituted by O(C₁-C₆ alkyl) or N(C₁-C₆ alkyl)₂ groups, C₃-C₁₂ cycloalkyl groups, C₇-C₁₃ aralkyl radicals, or C₆-C₁₄ aryl groups,

L^2 is halide ions or $R^6_xNH_{3-x}$, where x is an integer from 0 to 3 and R^6 is C_1 - C_{12} alkyl or C_1 - C_6 alkyl anions, allyl anions, benzyl anions or aryl anions, and optionally L^1 and L^2 being linked to one another by one or more covalent bonds; and

z is a number from 0 to 4; and

ii) immediately (co)polymerizing one or more olefins in water or a solvent mixture with a water content of at least 50 % by volume in the presence of an emulsifier and, optionally, of an activator.

Claim 15. (New) The process as claimed in claim 14, wherein one or more olefins are emulsion polymerized as a miniemulsion in water, produced with the aid of ultrasound.

Claim 16. (New) The process as claimed in claim 14, wherein said activator is present in the (co)polymerization medium.

Claim 17. (New) The process as claimed in claim 16, wherein said activator is an olefin complex of rhodium or nickel.

Claim 18. (New) The process as claimed in claim 16, wherein said emulsifier is an ionic emulsifier.

Claim 19. (New) The process as claimed in claim 14, wherein one of said olefins is ethylene.

Claim 20. (New) The process as claimed in claim 14, wherein one olefin is ethylene and the comonomer is selected from the group consisting of propylene, 1-butene, 1-hexene

and styrene.

Claim 21. (New) The process as claimed in claim 14, wherein the olefin for polymerization is ethylene.

Claim 22. (New) The process as claimed in claim 14, wherein said ligands Ia to Ib are combined in a ratio of 10 : 90 to 90 to 10 mole %.

Claim 23. (New) The process as claimed in claim 14, wherein the metal compound is combined with the phosphine or diphosphine in a molar ratio ranging from 1:1000 to 1000:1.

Claim 24. (New) The process as claimed in claim 14, wherein the ligand Ia or Ib is combined with the phosphine or diphosphine compound in a molar ratio ranging from 1:1000 to 1000:1.

Claim 25. (New) An aqueous dispersion of a polyolefin or copolymer of two or more olefins, prepared as set forth in claim 14.

Claim 26. (New) An aqueous dispersion of a polyethylene or ethylene copolymer, prepared as set forth in claim 14.

Claim 27. (New) The aqueous dispersion as claimed in claim 25, which is in the form of a miniemulsion.

Claim 28. (New) A method of paper coating or surface sizing or coating on carpet backings, comprising:

coating paper, sizing a surface or coating a carpet backing with a formulation comprising the aqueous emulsion of polyethylene prepared by the process of claim 14.

Claim 29. (New) A method of preparing paints, adhesive base materials or foam moldings, comprising:

preparing said paints, adhesive base materials or foam moldings from compositions that contain the aqueous emulsion of polyethylene prepared by the process of claim 14.

Claim 30. (New) A method of preparing textiles and leather or pharmaceuticals, comprising:

preparing said textiles and leather or pharmaceuticals from compositions that contain the aqueous emulsion of polyethylene prepared by the process of claim 14.